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X.—*Notes on the Coleopterous genus of Insects, Rhynchites of Herbst.* By JOHN WALTON, Esq.

IN the year 1838 I published some notes in the 'Entomological Magazine' (vol. v. p. 1 and p. 254) on the genera *Sitona*, *Polychrusus*, *Phyllobius* and *Apion*, belonging to the family *Curculionidae*, since which the species of the remaining genera have more or less engaged my attention. I repeat with pleasure that I have been permitted most liberally to examine all the metropolitan cabinets of insects, especially the rich one of Mr. Stephens, containing the late Mr. Marsham's collection; and I have endeavoured to determine, I hope with as few errors as possible, the nomenclature of our indigenous species, according to the views of Marsham, Kirby, Stephens and Curtis. In the above-named publication I recorded my belief that the principal part of the foreign synonyms of the British Curculionites were then in a very incorrect state; I therefore determined to make an attempt to ascertain by what names our species were known to the continental entomologists; and in order to carry out this intention I entered into correspondence with M. Schönherr, Dr. Germar and M. Chevrolat. I sent a series of British species of Curculionites to each of the above-named celebrated foreign entomologists, and in return was kindly furnished not only with the names by which they were known to them, but with numerous named types of species according to the Swedish, German and French authors, together with much valuable information. Principally from these materials I have been enabled to clear up, in a manner satisfactory to myself at least, the nomenclature of nearly all the British species, and propose to give a list of the indigenous Curculionites with their synonyms, accompanied with such observations as I presume may be useful.

As I shall frequently have occasion to refer to specimens contained in the Kirbian cabinet, so liberally presented to the Entomological Society by its venerable and talented Honorary President, it may be as well to call attention to the fact that that collection contains many species of Curculionites (as well as other Coleoptera).
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rous insects) named by the late celebrated Major Gyllenhal, with whom the Rev. Mr. Kirby corresponded; and moreover it may be generally regarded, with reference to the British specimens, as furnishing good authority for the Marshamian species.

The Linnæan and the Banksian collections I have also repeatedly examined: many of the specimens in the former have names attached in the handwriting of the illustrious naturalist; and as far as my experience goes, I think with Mr. Kirby, that a *large proportion* of the species which Linnæus described may be determined by a reference to his collection.

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Steph. Manual of British Coleoptera, by J. F. Stephens, 1839.

1. *Rhynchites Betulæ*, Linn., Herbst., Gyl., Schönh.
Attelabus Betulæ (Mus. Linn.), Fab., Marsh.
— *Betulæ*, Mus. Kirb.
Deporaus Betulæ, Steph.

Mr. Stephens has erected this single species into a new genus from an alleged difference in the construction of the antennæ, and from the males having the posterior femora dilated. I have carefully examined the structure of the antennæ of this and the other species of the genus *Rhynchites*, but cannot discover a difference of sufficient value to warrant a generic separation: the small females of *R. Betulæ* are closely linked to this genus by *R. megacephalus* not only in habit but in the form of the joints of the antennæ, and these assimilate with at least a majority of the species; but others are aberrant. *R. pubescens* has the seventh and eighth joints of the antennæ slender and obconic; the basal joints of the club (ninth, tenth) long obconic. *R. Betuleti* has the seventh and the eighth joints stout, transverse or lenticular; the basal joints of the club robust, transverse or subquadrate; the long slender antennæ of the females of *R. æquatus* and *R. æneovirens* also differ considerably from those of *R. Populi*. These anomalies exist more or less in every long genus of this family of insects, particularly in the genus *Otiorynchus*; but this diversity of structure in the

antennæ does not warrant in my opinion the dismemberment of a natural genus of insects. I may notice, that the antennæ in the females of this genus are more or less distinctly longer than in the males; the males have the antenna and its articulations shorter and stouter than the females: these sexual differences are very evident in the two species *R. æquatus* and *R. æneovirens*. The dilated posterior femora in the males of the present species can only be regarded as a sexual character: other organs are equally modified or varied in their structure by sexual differences, as I shall have occasion to notice in this and other portions of my communication.

2. *R. megacephalus*, Germ. 1824.

— *Mannerheimi*, Hummel.

— *lavicollis* and *cyaneopennis*, Steph. 1831.

— *constrictus* (Waltl.), Schönh. 1839.

Of species No. 2* I sent many specimens to Germar, whose authority I have for the first two names quoted: this author says, "it is without doubt my *R. megacephalus*." From Schönherr I have received a specimen of the *R. constrictus* of his work, and a comparison of that with the *lavicollis* and the *cyaneopennis* of Stephens leaves no doubt in my mind of the accuracy of the above synonyms.

I have found this species plentifully on the birch (*Betula alba*) in the middle of the month of July.

3. *R. pubescens*, Fab. (Mus. Banks.), Herbst, Germ., Steph., Schönh.

Curc. pubescens, Fab. Syst. Ent. 1775.

— *pubescens*, Marsh.

R. (♂) *cavifrons* (Chevr.), Schönh., Steph. Man.

Att. pubescens, Mus. Kirb.

M. Chevrolat, when in England, separated, as being his *R. cavifrons*, certain specimens from among a series in Mr. Waterhouse's cabinet, which were there labelled *pubescens*. I have likewise received a specimen of *R. cavifrons* from M. Chevrolat; these specimens are undoubtedly all males of *R. pubescens*, which differ from the females in having the head oblong, anteriorly broad, posteriorly narrowed, with the forehead more concave: the female has the head broader and shorter, less concave between the eyes, and of a transverse quadrangular form—sexual differences which are more or less distinctly traceable in very many species of this genus.

The ♂ and ♀ of *R. ophthalmicus* (a very nearly allied species)

* Throughout the paper I shall speak of the species according to the number, in preference to any name, to prevent confusion.

differ from each other in precisely the same way. I may notice likewise, that the males and females of this and many other species of *Curculionites* can be distinguished from each other by the differences in the form of the rostrum and the situation of the antennæ. The rostrum in the males is shorter and generally stouter, with the antennæ inserted before the middle or nearer the apex than in the females. In the females the rostrum is longer and situated at the middle, or more or less behind the middle*.

I have taken both sexes of this species upon the young shoots of the oak in the month of June.

4. *R. ophthalmicus*, Steph. Ill. 1831.

— (♂) *comatus*, Schönh. 1833.

— (♀) *cyanicolor*, id.

— (♂) *similis*, Curtis, 1837.

— *sericeus*, Steph. Man., not Herbst.

— (♂) *tomentosus*, Schönh. ?

Mr. Stephens is apparently the first author to have described this insect: subsequent to the description which appeared in his 'Illustrations,' he was of opinion that it was identical with the *R. sericeus* of Herbst. Dr. Germar however has sent me an insect with this last name attached, which is very distinct from the *ophthalmicus* of Stephens. I have not observed the *R. sericeus* of Herbst in any of our British collections.

I have found this species on the white-thorn (*Mespilus Oxyacantha*) in woods near Gravesend in the month of May and the beginning of June.

5. *R. nanus*, Payk. (1792), Gyl., Germ., Steph., Schönh.

— *minutus*, Herbst, 1797.

Att. cæruleus, Fab. Syst. Nat. Suppl. 1798.

— *planirostris*, Fab. Syst. Eleuth. 1801.

— (♀) *cylindricus* (Kirb. MSS. and Mus. Kirb.), Steph.

Of No. 5, I have three specimens sent me by Schönherr as the *R. nanus* of Gyllenh. Schönherr also gave the same name to some English specimens I forwarded to him for examination. From Dr. Germar I have the following note relative to this species: "The true *minutus* of Herbst agrees with *R. nanus*, Payk.; and *Attelabus cæruleus*, Fab., and *planirostris*, Fab. (non Schönh.) are also specifically identical with *nanus* (Mus. Herbst, Mus. Fabricii)."

The *Att. cylindricus* of Kirby's MSS. and of his collection I have carefully examined; it belongs to *R. nanus*.

I have repeatedly found this species upon the birch (*Betula alba*) in the month of July.

* Notes upon the genera *Sitona*, &c., Ent. Mag. vol. v. pp. 9, 10.

6. *R. conicus*, Illig. (1801—1806), Germ., Schönh.— *Alliariæ*, Steph.*Curc. Alliariæ*, Marsh.*Att. Alliariæ* and *nanus*, Mus. Kirb.

I have the authority of Schönherr and Germar for applying the name of *conicus* to this species. To both of these authors I have sent specimens. I have found this species in white-thorn hedges in the months of June and October.

7. *R. pauxillus*, Germ. (1824), Schönh., Steph. Man.— *atroceruleus*, Steph. Ill.

Of *R. pauxillus* of Germar I possess five specimens sent me by that author.

“This species (No. 7) is distinguished from *R. minutus* of Steph.” (Dr. Germar observes in his letter to me) “by the thorax being more deeply punctured, its dorsal channel distinct, and by the hairs covering the body being longer and more erect.” To these characters may be added a difference in the rostrum, viz. this organ is more curved in the present species than in the *minutus*. I have found the *R. pauxillus* on the white-thorn hedges at Swanscombe near Gravesend, in the months of May and June.

8. *R. germanicus*, Herbst, 1797. Mus. Herbst.— *minutus*, Gyl. (1813), Steph., Schönh.*Curc. nanus*, Marsh? 1802.*Att. æneovirens*, Mus. Kirb.*

Of this species (No. 8) I have foreign specimens sent me by Schönherr and Germar under the name *minutus*. I have also two English specimens which I forwarded to Germar, returned to me with the same name. From this latter author I have the following note regarding the present insect: “*R. minutus*, Schönh.; according to the cabinet of Herbst, it is the true *germanicus*.”

This is a very common species: its time of appearance is in the month of June.

9. *R. Alliariæ*, Payk. 1792, Gyl. 1813.— *interpunctatus* (Wilkin MSS.), Steph. 1831.— *megacephalus*, Schönh.

I sent this species both to Schönherr and Germar: the former informs me it is his *R. megacephalus*; from Germar I have the following note: “*R. interpunctatus*, Steph.—this name would be re-

* In Schönherr's ‘Syn. Ins.’ vol. i. p. 233, 1833, *Curc. æneovirens* of Marsham is cited as a synonym to No. 33, *R. Fragariæ* (“Teste Dom. Kirby”). It is evident from this that Kirby sent Gyllenhal a true Marshamian type (a blue variety) of the *æneovirens*, and judging from the only two examples of No. 8 now in Mr. Kirby's cabinet, which are blue-green varieties, he seems to have considered this species the same as the *æneovirens*.

Gyllenhal (which is very singular) made precisely the same error: see ‘Ins. Suec.’ iii. p. 27, 1813, which he corrected in Schönherr's ‘Syn. Ins.’ as above, twenty years afterwards.

tained, but it is the *Rh. Alliarie* of Gyl. and Payk.*, and the *R. megacephalus* of Schönherr." The *R. interpunctatus* of Wilkin's cabinet (now in the Zoological Society's museum) I have carefully examined.

I found this species very plentiful in Swanscombe Wood near Gravesend, on the young shoots of the oak underwood of two or three years' growth, in May.

10. *R. æquatus*, Auctorum.

Curc. æquatus, Mus. Linn.

Att. ♂ æquatus, Mus. Kirb.

— ♀ *nigripes*, id.

11. *R. cæruleocephalus*, Schal., Fab., Steph., Schönh.

Curc. cæruleocephalus, Schaller, Acta Hallensia, i. p. 282, 1783.

Of this insect I am only acquainted with one example; it is in the National cabinet: with that specimen I have compared one, with which it agrees, sent me by Dr. Germar bearing the same name.

It is found upon the white-thorn in Saxony.

12. *R. æneovirens*, Marsh. 1802, Steph.

— *Fragariæ* (Sturm, Ins. Cat. 1826), Schönh.

— *obscurus* (Megerle MSS.), Schönh.

Att. cupreus, Mus. Kirb.

Of the true *Curc. æneovirens* of Marsham I sent specimens to Schönherr, who states the species to be synonymous with his *R. obscurus*.

I sent to Dr. Germar many specimens of No. 12, including varieties, which he informed me were the *R. obscurus* of Schönherr.

It appearing to me that the *R. Fragariæ* of Schönherr was but

* In the Linnæan cabinet I find an insect agreeing with Linnæus's description pinned to a label with the name *Alliarie* on the upper side, and "4 *violaceus*" on the underside, both in the handwriting of Linnæus. This insect is a ♀, and I have little doubt, judging from Gyllenhal's description is the *Thamnophilus frontalis* of that author. Also besides the specimen with the double name upon the label there is another label, upon which is written by Linnæus the name *violaceus* only; the two insects upon this label are ♂ ♀ of the same species as the single insect which stands on the double name. In the 'Fauna Suecica,' p. 174, "No. 579, *Curc. violaceus, mediæ magnitudinis*." "No. 580, *Curc. Alliarie, magnitudo pulicis, præcedenti similimus*; sed PAULLO MAJOR, an *sexus vel ætatis discrimen*?"

Now it will be seen that Linnæus, in his 'Syst. Nat.' 1767, separates and places in two distinct sections the *C. Alliarie* and the *C. violaceus*; the former being placed in the section which he gives as character "longirostris femoribus simplicibus;" the latter (*C. violaceus*) is located in the section "longirostris femoribus dentatis." The fact is, that the *C. violaceus* and *C. Alliarie* of Linnæus are the sexes of one species, and in one sex (♀) the rostrum is longer, more curved and shining than in the male. Linnæus must have overlooked the tooth in the femora, as he has done to my knowledge in *Tychius*, *Bruchus* and some other genera.

a variety of this species, I called Dr. Germar's attention to the point, and in his notes he observes, "I agree with you in opinion that the *R. Fragariæ* is a blue variety of the *æneovirens* of Marsham." Dr. Germar has sent me a foreign specimen of the *Fragariæ*.

The blue-green varieties (the small males having the rostrum short) very much resemble, and may easily be mistaken for, the same coloured varieties of No. 8; however, this species is distinguished by having the body densely covered with long erect cinereous hairs. No. 8 is sparingly clothed by short subdepressed fuscous pubescence.

This species is found in the month of May upon the oak as soon as it begins to bud.

13. *R. cupreus*, Auctorum.

Curc. cupreus, Mus. Linn.

I am indebted to T. C. Heysham, Esq., of Carlisle, for the sexes of this rare and beautiful species, who kindly sent them alive in a pill-box by letter; he found them on the mountain-ash (*Pyrus aucuparia*) in the beginning of June.

14. *R. Betuleti*, Fab. (1792), Herbst, Gyl., Germ., Schönh.

Curc. Betulæ, Linn. (Mus. Linn.), Marsh.

— (var.) *nitens*, Marsh., Mus. Kirby.

R. Betulæ, Steph.

Att. Betuleti, Mus. Kirb.

It becomes necessary to follow those authors who use the Fabrician name *Betuleti* for this species to prevent confusion, Linnaeus having given the name *Betulæ* to another insect as well as to the present one, and that insect is by many authors regarded as a member of the genus *Rhynchites*.

15. *R. Populi*, Auctorum.

C. Populi, Linn. Mus. Linn.

Att. Populi, Mus. Kirb.

I have taken this insect in the month of June in Darent Wood from the young shoots of the *Populus tremula*.

At Colney Hatch Wood Mr. Smith has taken this species from the same plant in great abundance, and invariably found, by seeing them *in copulâ*, that the specimens with the spine on the side of the thorax were the males.

16. *R. auratus*, Scop., Schönh.

Curc. auratus, Scopoli, Ent. Carniol. 1763.

— (♂) *Bacchus*, Don. Brit. Ins.

— *Bacchus*, Marsh.

R. Bacchus, Gyl., Steph.

Att. (♂ ♀) *Bacchus*, Mus. Kirb.

The ♂ has the head longer and narrower than the ♀; the an-

tennæ inserted between the middle and the apex of the rostrum ; thorax anteriorly armed on both sides with a porrect spine ; scutellum in both sexes very large, and the margin elevated. The ♀ has the head shorter and broader than the ♂ ; the antennæ inserted in the middle of the rostrum, the thorax less dilated at the sides and very little narrowed in front, oblong, subcylindric, unarmed.

♂ ♀ in the cabinet of the British Museum and in that of the Entomological Society, Mr. Stephens's and my own.

"Taken in numbers on the *Prunus spinosa* at Crayford in Kent by myself."—Marsham MSS., Steph. Ill.

♂ ♀, in the cabinet of the Entomological Society, are from the collection of the Rev. Mr. Kirby.

Mr. Stephens had his specimens, with many others of this and the following species, from the Marshamian collection. I obtained mine from the cabinet of the late Mr. Millard.

The ♂ of this species, figured by Donovan, "was taken in the middle of June in a field near Kent."

This species has the usual sexual characteristics so generally developed throughout this extensive family of insects.

Schönherr's 'Synonymia Insectorum,' vol. v. p. 325, contains an observation that the Comte Dejean, in a letter to Gyllenhal, asserts that he is convinced, from his own experience, that the species with the thorax armed are the males, having taken pairs *in copulâ*.

Gyllenhal, Schönherr and other authors appear to have mistaken the sexes of this species.

17. *R. Bacchus*, Linn., Schönh.

Curc. Bacchus, Mus. Linn.

Splendid golden copper, with a shade of purple, shining, and covered with erect fuscous hairs. Head between the eyes deeply impressed ; vertex convex, deeply and coarsely punctured ; short, subquadrate. Eyes very prominent. Rostrum elongate, slender ; longer than the head and thorax together ; almost straight above ; at the base with two deeply impressed striæ which are punctate ; the interstice forming an elevated ridge or carina which is entirely of a violaceous black. Antennæ inserted a little before the middle of the rostrum, the joints dark violaceous, the club dusky black ; thorax rounded at the sides ; above convex ; constricted at the base and apex ; subglobose ; of a shining golden purple ; deeply and thickly rugose ; punctate anteriorly ; under both sides with a rudimental minute spine. Elytra of a shining golden copper ; indistinctly striated ; the striæ with rows of large deep punctures ; the interstices with smaller punctures, transversely rugose and elevated. Legs elongate ; femora clavate ; shining golden purple. Tibiæ golden purple. Tarsi violaceous black.—(Long. corp. 4 lin.)

The ♂ is distinguished (from the ♂ of *R. auratus*) by the head being shorter, the *eyes* evidently more *prominent*, the *rostrum* distinctly *longer* and *thinner*, the antennæ inserted nearer the middle of the rostrum, and the thorax shorter and having a minute rudimental spine on both sides. The scutellum in both sexes is distinctly smaller, and has the margin less elevated.

The ♀ has the *rostrum* distinctly *longer* and *thinner* (than the ♀ of *R. auratus*), the thorax shorter and more rounded at the sides, the *eyes* more *prominent*, and the sculpture in both sexes is deeper and coarser.

♂ ♀ in the cabinet of the British Museum and in that of Mr. Stephens and Mr. Curtis: ♀ in my own collection.

In the Linnæan cabinet there is one example only of this species, pinned through the name, and which is undoubtedly the true *Curc. Bacchus* of Linnæus. The ♂ ♀ in the cabinet of Mr. Stephens he obtained with many others in the Marshamian collection.

Mr. Curtis had his (♂ ♀) from the British cabinet of the late Mr. Francillon.

The ♀ in my own possession was taken by Mr. Benjamin Standish near Cracking Hill, Birch Wood, on the 24th of September 1843, off the oak underwood. Mr. Douglas, who was there on the same day, saw the insect alive.

At the first glance this species has certainly a great resemblance to No. 16, *R. auratus*, but the specific characters which separate the two are distinct and unequivocal: the blending of these two species in our cabinets must be attributable to the want of a proper examination.

XI.—*An account of some Seeds buried in a Sand-pit which germinated.* By Mr. WILLIAM KEMP of Galashiels, in a Letter to Charles Darwin, Esq.

HAVING received early last spring some seeds, which were found at the bottom of a sand-pit upwards of twenty-five feet in depth, I most carefully examined into all the circumstances of their discovery. They were first seen by a respectable workman of the name of Thomas Welsh, who was excavating the finer sand at the bottom of the pit, in a part which was rather undermined; and fortunately Mr. John Bell of Melrose, the proprietor of the place, was looking on at the instant that they were disinterred. He kindly sent by Welsh some of the seeds to me, and I immediately returned with him, and in company with Mr. Bell carefully examined the layer in which they had been imbedded. The seeds were apparently of only two kinds; I sent specimens of them (through